Shane Rattenbury MLA
Attorney-General
Minister for Consumer Affairs
Minister for Water, Energy and Emissions Reduction
Minister for Gaming

Member for Kurrajong

RESPONSE TO QUESTION ON NOTICE
Questions on Notice Paper No 33
1 September 2023
Question No. 1347

MS LAWDER MLA - To ask the Minister for Water, Energy and Emissions Reduction:

(1) What evidence is there that naturalisation of the Tuggeranong channel will actually improve the water quality, apart from theory and modelling.

(2) What examples are there that naturalisation has been effective in improving water quality, and can these examples specify the actual improvement in water quality, not just the theoretical or modelled changes.

(3) What monitoring was performed in those examples, referred to in part (2), to prove the improved water quality, and was it (a) event data, composite event sampling or just periodic base flow (eg waterwatch data), (b) event loads or just concentrations and (c) frequency and duration of algal blooms, and were they flow related, eg, was there a control and a test site, event monitored (not composite sampling), with flow.

(4) Given that naturalisation will improve the entrapment of litter within the naturalised creek, what additional costs and frequency of cleaning is estimated and based on what evidence.

(5) What scientific evidence is there that naturalised waterways do not produce significant mosquito problems.

MR RATTENBURY MLA - The answer to the Member's question is as follows:

(1) Evidence to support the benefits of renaturalising Tuggeranong Creek is derived from research and a study of naturalisation in Western Australia. Research in urban hydrology and water quality has established that urbanisation has caused stormwater runoff to be diverted to cement drains which provides little or no treatment. This is contrary to allowing the stormwater runoff to slowly soak into catchment soils and vegetation which helps to reduce runoff peaks, and strip water of pollutants before the water is delivered to lakes and ponds. Transitioning a concrete channel back to a natural state reinstates this natural process of filtration and purification of water and so helps to improve water quality.

A study from Western Australia found high levels of filtering of plant nutrients following partial re-naturalisation.

The project to re-naturalise Tuggeranong Creek and several others is new and is being trialled as one of many approaches to improving water quality asset designs in the ACT. Contracts to support water quality monitoring are now in place. There are plans to monitor the various new kinds of infrastructure, including this naturalisation, to test their efficacy compared with alternatives.

(2) The example cited above is from a 320-metre length of Bannister Creek, Western Australia. In this case phosphorous and nitrogen levels dropped by around a third.

(3) Levels of nitrogen and phosphorus were measured fortnightly for three years before, two years during and thirteen years after the re-naturalisation of Bannister Creek. There were no measurements of receiving waters or algae.

(4) Rubbish will be collected as per Transport Canberra and City Services Directorate's (TCCS) Municipal Infrastructure Technical Specifications. TCCS will collect litter after a significant storm event of 4 exceedance per year or greater. This is defined as 7.5mm of rain in 30 minutes, 26mm rain in 12 hours, 31mm in 24 hours, or 38mm in 72 hours. There is a gross pollutant trap below this asset that will also capture the rubbish.

(5) Evidence suggests that constructed wetlands do not provide habitat for mosquitoes more so than other stormwater infrastructure. The Tuggeranong Creek channel re-naturalisation does not feature the types of wetland habitat that promote mosquitoes. No complaints have been received about mosquitos breeding in any of the 23 water quality assets built so far in the Healthy Waterways program. This may be because the area of additional mosquito habitat provided by such water quality assets is very small in comparison to the collective habitat provided by gutters, containers and the like in resident's back yards and the existing stormwater system.

Approved for circulation to the Member and incorporation into Hansard.

Shane Rattenbury MLA
Minister for Water, Energy and Emissions Reduction **Date:** 23/9/23

This response required 2hrs 50mins to complete, at an approximate cost of $294.00.